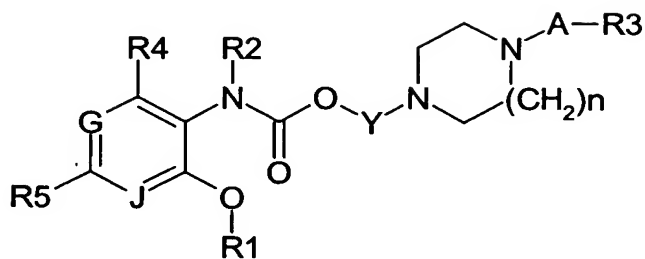


## CLAIMS

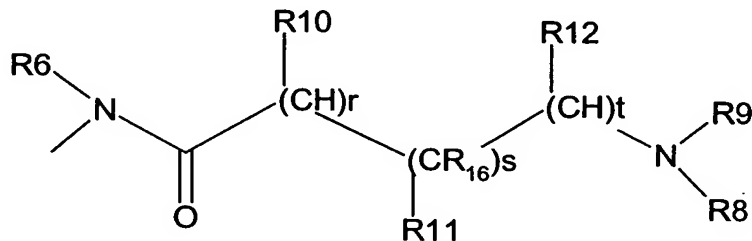
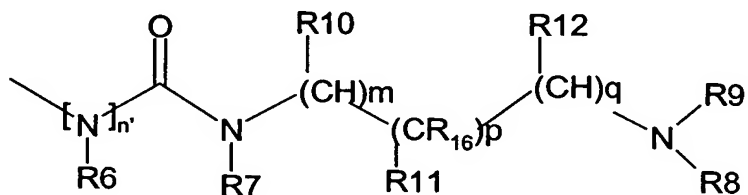
1. A compound represented by general formula (I) :



Formula (I)

in which :

- $R_1$  represents a lower alkyl, aryl, halogenoalkyl or lower arylalkyl group,
- $R_2$  represents the hydrogen atom or a lower alkyl group,
- A represents an aryl or heterocycle group, said group possibly being substituted by a substituent other than  $R_3$ ,
- $R_3$  represents a group selected from among the following groups :



,  $NR_6COR_{13}$ , and  $-(NR_6)_n-CONR_7R_{13}$ ,

- the groups  $R_7$ - $R_{12}$ , which are the same or different, represent the hydrogen atom, an aryl group, a heteroaryl group, a heterocycle group, an arylalkyl group, a heteroarylalkyl group, a heterocycloalkyl group, a lower alkyl group, a cycloalkyl group, an alkoxyalkyl group, an alkylaminoalkyl group, an alkyl-COOR<sub>17</sub> group,
- the groups  $R_7$ - $R_{12}$ , taken two by two can additionally form, together with the linear chain supporting them, at least one ring saturated or not, such as in particular cycloalkyl, cycloalkylene, heterocycle,
- the groups  $R_{10}$ - $R_{12}$  can also represent a COOR<sub>17</sub> group,
- $R_{13}$  represents a lower alkyl group, a cycloalkyl group, an aryl group, a heterocycle, an arylalkyl group, a heteroarylalkyl group, a heterocycloalkyl group, a cycloalkylcarboxy group, an alkyl-COOR<sub>17</sub> group, an alkoxyalkyl group, an imidazopyridinylalkyl group, a trifluoroalkyl group or a heteroarylthioalkyl group, it being understood that  $R_{13}$  cannot represent the methyl group or the ethyl group, in the case where A represents a phenyl,  $R_2$  represents the hydrogen atom, G and J represent the CH group,  $R_3$  represents NR<sub>6</sub>COR<sub>13</sub> or -(NR<sub>6</sub>)<sub>n</sub>-CONR<sub>7</sub>R<sub>13</sub> where  $R_6$  and/or  $R_7$  represent the hydrogen atom,
- n is 1 or 2; n' is 0 or 1, m, p, q, r, s and t are integers comprised between 0 and 2 inclusive, r, s and t not simultaneously being 0,
- Y represents a linear or branched alkylene chain, having 2 to 5 carbon atoms,
- J represents a C-R<sub>14</sub> group or the nitrogen atom
- G represents a C-R<sub>15</sub> group or the nitrogen atom
- $R_6$ ,  $R_{16}$  and  $R_{17}$ , which are the same or different, represent the hydrogen atom or a lower alkyl group,
- $R_4$ ,  $R_5$ ,  $R_{14}$  and  $R_{15}$  taken individually represent the hydrogen atom, a halogen atom, a lower alkyl group, an alkoxy, alkylthio, alkylsulfonyl, alkylsulfoxide, trifluoromethyl, nitro, cyano, carboxy, alkylcarboxy, alkylamino or dialkylamino group,
- or, when G or J are not the nitrogen atom, the groups OR<sub>1</sub> and  $R_{14}$  and/or the groups  $R_{14}$  and  $R_5$  and/or the groups  $R_{15}$  and  $R_5$  and/or the groups  $R_{15}$  and  $R_4$  can form, together with the aromatic ring to which they are attached, a ring saturated or not,

said alkyl, cycloalkyl, aryl, arylalkyl, heteroaryl, heterocycle, heterocycloalkyl, heteroarylalkyl, alkylaminoalkyl, alkoxy, alkoxyalkyl, alkylthio and alkylcarboxy groups, and said ring, being substituted or not, and their salts, optical and geometrical isomers or their mixtures.

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2. The compound represented by general formula (I) according to claim 1, in which R1 represents a lower alkyl group and preferably a methyl or ethyl group.

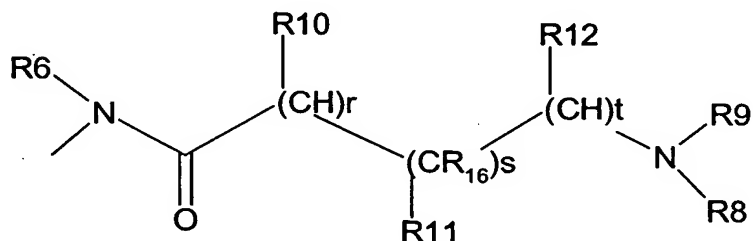
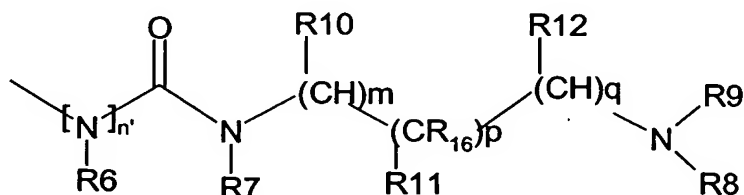
3. The compound represented by general formula (I) according to claim 1 or 2, in which :

10

- A represents a phenyl, a pyrimidine, a pyridazine or a pyrazine and/or
- $n = 1$  and/or
- $n' = 1$  and/or
- Y is an alkylene chain having 2 or 3 carbon atoms, preferably linear, and/or
- $R_2$  is a hydrogen atom, and/or

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- $R_3$  represents a group selected from among the following :



- $R_4$  is a hydrogen atom, and/or
- $R_6$  is a hydrogen atom, and/or
- G is a CH group, and/or
- J is a CH group.

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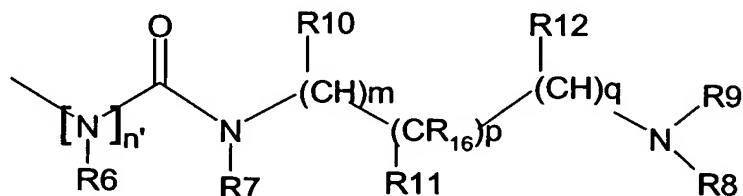
4. The compound represented by general formula (I) according to claim 1 or 2, in which :

- A represents a phenyl, a pyrimidine, a pyridazine or a pyrazine and/or
- $n = 1$  and/or

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- $n' = 0$  and/or
- Y is an alkylene chain having 2 or 3 carbon atoms, preferably linear, and/or
- $R_2$  is a hydrogen atom, and/or
- $R_3$  represents a group selected from among the following :

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- $R_4$  is a hydrogen atom, and/or
- G is a CH group, and/or
- J is a CH group.

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5. The compound represented by general formula (I) according to claim 1 or 2, in which :

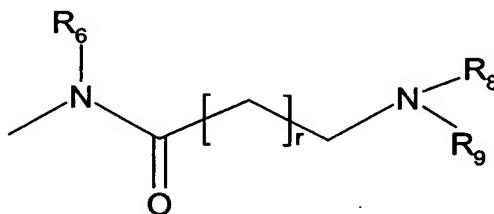
- A represents a phenyl, a pyrimidine, a pyridazine or a pyrazine and/or
- $n = 1$  and/or

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- Y is an alkylene chain having 2 or 3 carbon atoms, preferably linear, and/or
- $R_2$  is a hydrogen atom, and/or
- $R_4$  is a hydrogen atom, and/or
- $R_5$  is a hydrogen atom, and/or
- G is a CH group, and/or

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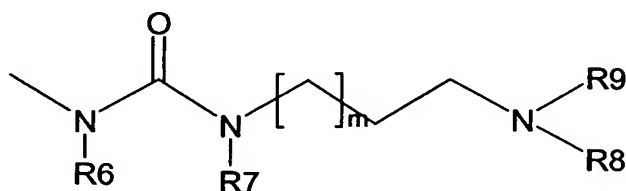
- J is a CH group, and/or
- $R_3$  represents a group selected from among the following :



- 25 where  $R_6$  is a hydrogen atom or a lower alkyl group (in particular methyl) and r represents 0, 1 or 2 (in particular 1 or 2).

6. The compound represented by general formula (I) according to claim 1 or 2, in which :

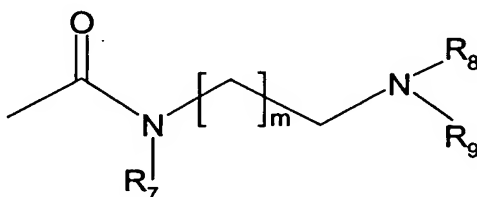
- A represents a phenyl, a pyrimidine, a pyridazine or a pyrazine and/or
- $n = 1$ , and/or
- Y is an alkylene chain having 2 or 3 carbon atoms, preferably linear, and/or
- $R_2$  is a hydrogen atom, and/or
- $R_4$  is a hydrogen atom, and/or
- $R_5$  is a hydrogen atom, and/or
- G is a CH group, and/or
- J is a CH group, and/or
- $R_3$  represents a group selected from among the following :



where  $R_6$  is a hydrogen atom or a lower alkyl group (in particular methyl),  $R_7$  is a hydrogen atom or a lower alkyl group (in particular methyl), and  $m$  is an integer comprised between 0 and 2 inclusive (in particular 0 or 1).

7. The compound represented by general formula (I) according to claim 1 or 2, in which :

- A represents a phenyl, a pyrimidine, a pyridazine or a pyrazine and/or
- $n = 1$ , and/or
- Y is an alkylene chain having 2 or 3 carbon atoms, preferably linear, and/or
- $R_2$  is a hydrogen atom, and/or
- $R_4$  is a hydrogen atom, and/or
- $R_5$  is a hydrogen atom, and/or
- G is a CH group, and/or
- J is a CH group, and/or
- $R_3$  represents a group selected from among the following :



where  $R_7$  is a hydrogen atom or a lower alkyl group (in particular methyl) and  $m$  represents 1 or 2.

5 8. The compound represented by general formula I according to claim 1 or 2, formula in which  $R_3$  represents a  $-NR_6-COR_{13}$  or  $-(NR_6)_n-CONR_7R_{13}$  group, with  $R_{13}$  representing a cycloalkyl group, a heterocycle, an arylalkyl group, a heteroarylalkyl group, a heterocycloalkyl group, an alkylcarboxy group, a cycloalkylcarboxy group, an alkyl-COOR<sub>17</sub> group, an imidazopyridinylalkyl group, a trifluoroalkyl group or a  
10 heteroarylthioalkyl group.

9. The compound represented by general formula I according to claim 1 or 2, formula in which  $R_3$  represents a  $-CONR_7R_{13}$  group, with  $R_{13}$  representing a cycloalkyl group, a heterocycle, an arylalkyl group, a heteroarylalkyl group, a heterocycloalkyl group, an  
15 alkylcarboxy group, a cycloalkylcarboxy group, an alkyl-COOR<sub>17</sub> group, an alkoxyalkyl group, an imidazopyridinylalkyl group, a trifluoroalkyl group or a heteroarylthioalkyl group.

10. The compound represented by formula (I) according to any one of claims 1 to 9, in  
20 which A represents a phenyl, possibly substituted.

11. The compound represented by formula (I) according to any one of claims 1 to 10, in which Y is an alkylene chain containing 2 or 3 carbons.

25 12. The compound selected in the group consisting of compounds of examples Nos. 9 to 46, and salts thereof.

13. The compound selected in the group consisting of compounds of examples Nos. 47 to 67, and salts thereof.

30 14. The compound selected in the group consisting of compounds of examples Nos. 72 to 102 and 104 to 106, and salts thereof.

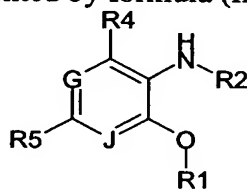
15. The compound selected in the group consisting of compounds of examples Nos. 112 to  
35 119, and salts thereof.

16. The compound selected in the group consisting of the following:  
 2-(4-{3-[3-(1-ethyl-pyrrolidin-2-ylmethyl)-ureido]-phenyl}-piperazin-1-yl)-ethyl-N-(2-ethoxy-phenyl)carbamate,  
 5 2-(4-{3-[(1-methyl-1,2,5,6-tetrahydro-pyridine-3-carbonyl)-amino]-phenyl}-piperazin-1-yl)-ethyl-N-(2-ethoxy-phenyl)carbamate,  
 2-{4-[3-(3-amino-propionylamino)-phenyl]-piperazin-1-yl}-ethyl ester-N-(2-ethoxy-phenyl)carbamate,  
 2-(4-{3-[2-amino-3-(4-hydroxy-phenyl)-propionylamino]-phenyl}-piperazin-1-yl)-ethyl-N-(2-ethoxy-phenyl)carbamate,  
 10 2-[4-(3-{3-[3-(4-methyl-piperazin-1-yl)-propyl]-ureido}-phenyl)-piperazin-1-yl]-ethyl-N-(2-ethoxy-phenyl)carbamate,  
 2-(4-{3-[(4-pyrrolidin-1-yl-piperidine-1-carbonyl)-amino]-phenyl}-piperazin-1-yl)-ethyl-N-(2-ethoxy-phenyl)carbamate,  
 15 2-(4-{3-[2-piperidin-1-yl-ethylcarbamoyl]-phenyl}-piperazin-1-yl)-ethyl-N-(2-ethoxy-phenyl)carbamate,  
 2-(4-{3-[(2-dimethylamino-ethyl)-methyl-carbamoyl]-phenyl}-piperazin-1-yl)-ethyl-N-(2-ethoxy-phenyl)carbamate, and the salts thereof.
- 20 17. Intermediate products useful for preparing products according to claim 1 which are ethyl 3-{4-[2-(2-ethoxy-phenylcarbamoyloxy)-ethyl]-piperazin-1-yl}-benzoate, sodium 3-{4-[2-(2-ethoxy-phenylcarbamoyloxy)-ethyl]-piperazin-1-yl}-benzoate or one of the addition salts of same.
- 25 18. A pharmaceutical composition comprising at least one compound according to any one of claims 1 to 16.
19. The pharmaceutical composition according to claim 18, for the treatment or prophylaxis of diseases involving the 5-HT<sub>4</sub> receptor.
- 30 20. The pharmaceutical composition according to claim 18, for the treatment or prophylaxis of gastrointestinal disorders, central nervous system disorders, cardiac diseases, urological diseases, pain or migraine.

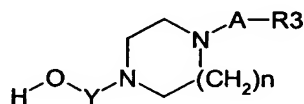
21. A use of a compound according to any one of claims 1 to 16 for preparing a pharmaceutical composition intended for practicing a method of treatment or prophylaxis of the human or animal body.

22. A use of a compound according to any one of claims 1 to 16 for preparing a pharmaceutical composition intended for the therapeutic or preventive treatment of gastrointestinal disorders, central nervous system disorders, cardiac diseases, urological diseases, pain or migraine.

23. A method for preparing a compound according to any one of claims 1 to 16, characterized in that a product represented by formula (II) is reacted with a product represented by formula (III) :



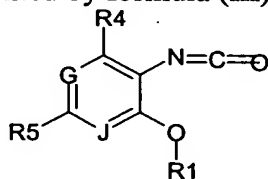
(II)



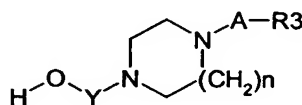
(III)

in which the groups R1, R2, R3, R4, R5, A, Y, J, G and n are defined as in claim 1, in the presence of a carbonyl donor reagent, preferably triphosgene, and the resulting product is recovered.

24. A method for preparing a compound according to any one of claims 1 to 16, characterized in that a product represented by formula (IV) is reacted with a product represented by formula (III) :



(IV)

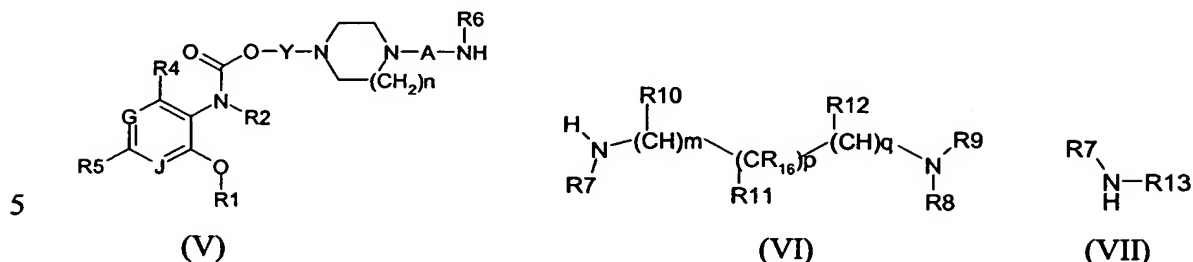


(III)

in which the groups R1, R3, R4, R5, A, Y, J, G and n are defined as in claim 1, in an aprotic solvent, preferably tetrahydrofuran.

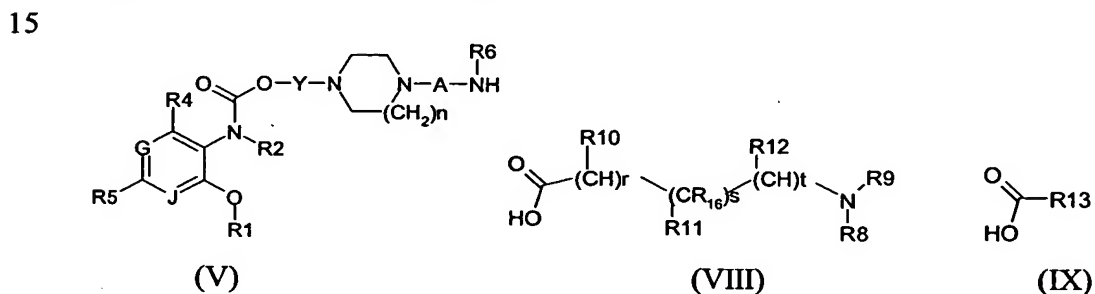


25. A method for preparing a compound according to any one of claims 1 to 16, characterized in that a product represented by formula (V) is reacted with a product represented by formula (VI) or (VII) :



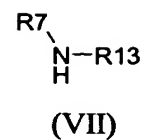
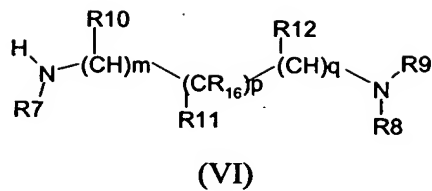
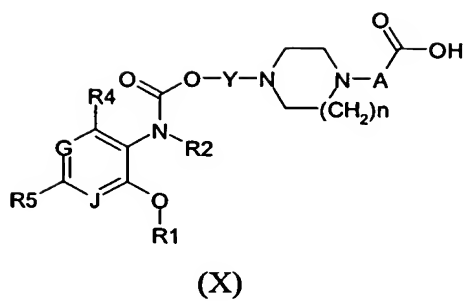
10 in which the groups R1-R13, R16, A, Y, J, G and n, m, p, q are defined as in claim 1, in an aprotic solvent, preferably tetrahydrofuran, in the presence of a carbonyl donor reagent, preferably triphosgene.

26. A method for preparing a compound according to any one of claims 1 to 16, characterized in that a product represented by formula (V) is reacted with a product represented by formula (VIII) or (IX) :



20 in which the groups R1-R6, R8-R13, R16, A, Y, J, G and n, r, s and t are defined as in claim 1, in an aprotic solvent preferably tetrahydrofuran, in the presence of a classical coupling agent, preferably DCC on a solid support or EDCI.

25 27. A method for preparing a compound according to any one of claims 1 to 16, characterized in that a product represented by formula (X) is reacted with a product represented by formula (VI) or (VII) :



in which the groups R1-R5, R7-R13, R16, A, Y, J, G and n, m, p and q are defined as in  
 5 claim 1, in an aprotic solvent preferably tetrahydrofuran, in the presence of a classical  
 coupling agent, preferably DCC on a solid support or EDCI.